

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REFINING OF LINSEED OIL -U-
AUTHOR--(051)-ARTYUNYAN, N.S., ARISHEVA, YE.A., LITVINOVA, YE.D., PETRENKO,
YU.A., MNUKHTIN, O.YU.
CCUNTRY OF INFO--USSR
SOURCE--MASLO-ZHIR. PROM. 1970, 36(3), 19-21
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--WOOD CHEMICAL PRODUCT, CHEMICAL PURIFICATION, OPTIC PROPERTY,
TEST METHOD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1561 STEP NO--UR/9085/70/036/003/0019/0021
CIRC ACCESSION NO--AP0118544
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118544

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFINING OF LINSEED OIL, CONSISTING OF TREATING WITH ACIDS, NEUTRALIZATION WITH NaOH (80 G-L.), AND TREATING WITH ACTIVATED BLEACHING CLAY WAS EXP'TL. INVESTIGATED WITH SPECIAL EMPHASIS ON ACID TREATMENT. A COMPARISON WAS MADE BETWEEN REFINING INCLUDING TREATMENT WITH ACIDS, AND REFINING WITHOUT ACIDS. PRELIMINARY TREATMENT OF 3 LINSEED OIL TYPES (PREPD. FROM FLAX FOR SPINNING, FROM FLAX FOR OIL PREPN., AND FROM A FLAX MIXT.) WITH 0.2PERCENT (BASED ON THE AMT. OF OIL) 85PERCENT H SUB3 PD SUB4 OR 93PERCENT H SUB2 SO SUB4 OR WITH THEIR DIL. SOLNS. PROVIDES BETTER ELIMINATION OF PHOSPHATIDES AND AN IMPROVEMENT IN OIL APPEARANCE (LOWER COLOR) AND ITS THERMAL TESTING COMPARED WITH AN UNTREATED OIL SAMPLE.

FACILITY: KRASNODAR. POLITEKH. INST., KRASNODAR, USSR.

UNCLASSIFIED

A UDC: 621.793.1:669.718

ZEMSKOV, G. V., and ARTYUSHCHENKO, I. I., Odessa Polytechnic Institute

"Deposition of Aluminum From the Gas Phase"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 473-474.

Abstract: Aluminum coatings may be deposited on any material, including nonmetals, capable of withstanding heat up to 300°C by the use of thermal degradation of vapors of organoaluminum compounds at relatively low temperatures. Triisobutylaluminum, a colorless liquid with a boiling temperature of 200°C, was used as the initial organoaluminum compound (OAC). The process is of an adsorption-catalytic type and the increase in OAC vapor concentration in the gas mixture raises the deposition rate to a certain value. At a lower velocity of the gas flow the extent of metal extraction from OAC is greater but the coating is not uniform over the length of the specimen. Apparently, coating uniformity requires a flow of specific turbulence. Optimum results were obtained with a steel substrate temperature within 280--300°C. A coating cannot be produced at 260°C and below. An increase in temperature causes hydrocarbon dissociation; carbon

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ZEMSKOV, G. V., et al, Zashchita Metallov, Vol 6, No 4, Jul-Aug 70, pp 473-474

which hinders the formation of an aluminum coating is liberated on the surface of the metal. Coating uniformity is promoted by constant temperature along the length of the specimen. Diffusion annealing raises the heat resistance of coatings. Interdiffusion of elements at metal interface provides strong cohesion of the coating with the base. The aluminum coating is nonporous, dense, and plastic. The advantage of the method is a high metal deposition rate, moderate processing temperature, and the possibility of coating a variety of materials. The method may be used to produce coatings at temperatures below the recrystallization point of the metal or the alloy.

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Information Theory

USSR

UDC: 629.735.33.072.8--515

ARTYUSHENKO, M. V. and KOVAL'CHUK, O. I.

"Storage and Transmission of Sequences of Moving Images"

Kiev, Izvestiya VUZ SSSR--Radioelektronika, No 9, 1972, pp 1160-1165

Abstract: A method is proposed for storing and producing information regarding changes in the shape of objects with less redundancy than television or cinematic frames. The method makes use of the theory of continuous groups for the practically important problem of compressing preserved and perceived information in a form similar to the succession of images shown in aviation training devices. To attain this end, the authors examine the physics of the connection between the images. A description of the set of homeomorphic images is obtained through a single specified element of that set and the set of transformation functions of the image plane, and it is shown that the description can be further simplified through a more detailed examination of the set of transformation functions. Expressions are found for the homeomorphism between transformation groups. The expressions obtained for shortening the amount of
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UDC: 629.735.33.072.8--515

ARTYUSHENKO, M. V., et al, Izvestiya VUZ SSSR--Radioelektronika,
No 9, 1972, pp 1160-1165

stored images were subjected to modeling on the BESM-6 computer,
and the block diagram for the modeling procedure is shown.

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USSR

UDC: 577.4

ARTYUSHENKO, V. V., TURUTA, Ye. N.

"Analysis of the Reliability of Microprogram Automata"

V sb. Avtomaty i upr. setyami svyazi (Automata and Control of Communications Networks--collection of works), Moscow, "Nauka", 1971, pp.154-159 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V386)

Translation: The paper proposes a reliability criterion for a microprogram automaton and a method of calculating reliability by this criterion.
Authors' abstract.

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USSR

UDC: 77

ARTYUSHIN, L. F.

"Principles of Reproduction of Color in Photography, Cinematography, and Polygraphy"

Osnovy Vospromozhdeniya Tsveta v Fotografii, Kino i Poligrafii [English Version Above], Moscow, Iskusstvo Press, 1970, 548 pp, (Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract #8D1319K, by A. L. Kartuzhanskiy).

Translation: This book is a monograph on the theoretical principles of color reproduction (CR) and methods of color correction (CC) in photographic and polygraphic images (including electronic methods of CC). It consists of 19 chapters: 1) Basic concepts and definitions of color science; 2) The duplication theory of CR; 3) Light-dividing characteristics of photographic materials; 4) External masking; 6) Elements of colorimetry; 7 and 8) The spectral sensitivity of sensors in additive and subtractive processes; 9) The selection of dyes for subtractive synthesis; 10) Electronic methods of CC; 11) Electronic light-dividing correction; 12) The black image in color reproduction; 13 and 14) Gradation correction, including

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USSR

UDC: 624.072.2

ARTYUSHKOVA I. F.

"Optimization of a Guying System in the Case of Nonunique Loading"

Tr. TsNII Stroit. konstruksiy (Works of the Central Scientific Research Institute of Structural Elements), 1970, vyp. 9, pp 99-104 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V832)

Translation: The author considers optimization of a flat guying system, taking the theoretical cost of the guys and support ring as the target function. Forces in the prestressing stage are taken as the independent variables. Conditions of equilibrium, and limitations on strength and rigidity are taken into account. A method of descent is considered in which use is made of the linear parts of increments in the parameters being varied and linearization of the cost function. The simplex method is used for solving an auxiliary problem at each step. Problems of convergence are not considered. The results of an example of calculation on the "Ural-4" digital computer are presented. A. I. Vinogradov.

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USSR

UDC: 51

ARUIN, L. I.

"Concerning the Faces of a Convex Linear Shell of a Set of Integral Points Belonging to the Set of Admissible Solutions of a Problem in Whole-Number Linear Programming"

Tr. 4-y Zimm. shkoly po mat. programir. i smezh. voprosam, 1971, vyp. 1
(Works of the Fourth Winter School on Mathematical Programming and Related Problems, 1971, No 1), Moscow, 1971, pp 137-148 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V429)

Translation: It is shown that solving problems in whole-number linear programming by the method of truncation involves overcoming a number of difficulties -- both theoretical and computational. Let L be a set of plans of a problem in linear programming. Let L^W be the set of plans of the corresponding whole-number linear programming problem. Let $V(L^W)$ be a convex linear shell of set L^W . Clearly by solving the linear programming problem with a set of restrictions given by the faces of $V(L^W)$ we get the optimum plan of the corresponding whole-number linear programming problem. It is also clear that the faces of $V(L^W)$ constitute the "strongest" truncations. In the final analysis, the problem of finding the faces of $V(L^W)$ is of in-

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USSR

ARUIN, L. I., Tr. 4-y Zimm. shkoly po mat. programmir. i smezh. vopr., 1971, vyp. 1, Moscow, 1971, pp 137-148

terest both in itself and from the standpoint of its possible application. Important results in this direction were obtained by Gomori (RZh-Mat, 1970, 6V512; literature is cited there as well). However, even after the appearance of this paper, methods of finding the faces of $V(L^W)$ remain unknown.

This paper investigates certain problems relating to the structure of the faces of $V(L^W)$. The results presented here were found in a dissertation ("Investigation of the Structure of Auxiliary Linear Constraints in Various Algorithms of the Method of Truncation", Moscow, mekh.-mat. MGU, 1970). Some results of a paper by this abstractor (abst. 6V428) are used.

Using the approach utilized by Gomori for constructing truncations in his third algorithm, the author studies the case where set L takes the following form:

$$-ax_1 + x_2 \leq 0; -x_1 - x_2 \leq -1; x_1, x_2 \geq 0. \quad (1)$$

Here a is positive.

Theorem. From the equation

$$\left[-\frac{aa+b}{\lambda}\right]x_1 + \left[\frac{a-b}{\lambda}\right]x_2 = \left[-\frac{b}{\lambda}\right]. \quad (2)$$

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ARUIN, L. I., Tr. 4-y Zimm. shkoly po mat. programmir. i smezh. vopr., 1971, vyp. 1, Moscow, 1971, pp 137-148

where $[A]$ designates the integral part of number A , it is possible to find all faces of $V(L^W)$ for L given by (1) for the corresponding positive λ and non-negative a and b . An example is constructed of a problem with two variables in which an analogous method does not give all faces of $V(L^W)$. It is shown that the number of faces may be arbitrarily large even for the simplest region L . Yu. Finkel'shteyn.

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SOME PROBLEMS CONCERNED WITH THE PATHOGENESIS OF ACUTE PANCREATITIS
-U-
AUTHOR--(03)-ARUIN, L.I., VAYNSHTEYN, T.YA., ZHUK, YE.A.
COUNTRY OF INFO--USSR
SOURCE--BYULLETEN EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR
5, PP 42-46
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PANCREATITIS, EDEMA, HEMORRHAGE, TRYPSIN, CLINICAL MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0067 STEP NO--UR/0219/70/069/005/0042/0046
CIRC ACCESSION NO--AP0120767
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120767

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UPON INTRODUCTION INTO THE PANCREATIC DUCT OF ALBINO RATS OF 1 ML OF A 0.001 N SOLUTION OF HYDROCHLORIC ACID, IRRESPECTIVE OF THE ADDITION OF CRYSTALLIC TRYPSIN INTO THE SOLUTION, A MORPHOLOGICAL PICTURE OF EDEMATOUS HEMORRHAGIC PANCREATITIS DEVELOPS. ADMINISTRATION INTO THE PANCREATIC DUCT OF CRYSTALLIC TRYPSIN, DISOLVED DIRECTLY PRIOR TO INTRODUCTION OF A 0.85PERCENT SOLUTION OF SODIUM CHLORIDE, DOES NOT LEAD TO THE DEVELOPMENT OF ACUTE PANCREATITIS. NOTWITHSTANDING THE VERY MARKED MORPHOLOGICAL PICTURE OF EDEMATOUS HEMORRHAGIC PANCREATITIS IN THE RAT PANCREATIC HOMOGENATE THERE IS REVEALED NO MEASURABLE ACTIVITY OF TRYPSIN AND TOTAL PROTEOLYTIC ACTIVITY. REDUCTION IN THE TRYPSINOGEN CONTENT IN THE PANCREATIC HOMOGENATE WAS NOT NOTED. THIS GIVES GROUNDS TO STATE THAT IN THE ABOVE MENTIONED MODEL TRYPSIN IS NOT THE PRIMARY CAUSE OF ACUTE EDEMATOUS HEMORRHAGIC PANCREATITIS. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF GASTROENTEROLOGY AND THE FIRST MOSCOW SECHENOV MEDICAL INSTITUTE.

UNCLASSIFIED

Acc. Nr: **AP0047355**

Ref. Code: **UR0589**

PRIMARY SOURCE: Vestnik Khirurgii *A* imeni I. I. Grekova, 1970,
Vol 104, Nr 1, pp **39-44**

ON PATHOGENESIS OF HEMORRHAGE FROM ESOPHAGEAL AND GASTRIC
VEINS IN PORTAL HYPERTENSION

By M. D. Patsiora, L. I. Aruin, L. M. Karpman and A. K. Yeramishantsev

The authors have investigated 123 patients with portal hypertension complicated by esophageal or gastric phlebectasis. In 88 patients there were gastroesophageal hemorrhages in the anamnesis. In 34 patients during surgical procedures on esophageal and gastric veins the biopsy mucosa specimens from the cardiac portion of the stomach and lower esophagus were studied. It is concluded, that a hemodynamic factor — high portal pressure is of primary importance in causing hemorrhage from esophageal or gastric varices. The starting mechanism of bleeding is hypertensive crisis in the portal system. Acid-peptic factor could contribute to hemorrhage, while disturbances in the blood coagulation system could stipulate its massive character and duration, but they do not play a leading part in the occurrence of bleeding.

11/ REEL/FRAME

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ARUIN, M. I.

FIRST ALL-RUSSIAN CONGRESS ON THE CONTROL OF HEAVY DRINKING

UDC: 613.816:061.3(47)"1909-1910"

SPRS 55570
29 Nov 72

Article by M. I. Aruin, candidate of medical sciences, M. I. Aruin, and A. I. Nesterenko, candidate of medical sciences, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization (Institute N.A. Semashko, Moscow; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 2, 1972, submitted 29 July 1971, pp 61-63)

The urgency of the problem of controlling alcoholism makes it imperative to study not only its state today but also to pursue an in-depth historical analysis. Until now there had not been an exhaustive and generalizing study dealing with the history of excessive drinking and control thereof in pre-revolutionary Russia and the Soviet Union. In the department of history of medicine of the All-Union Scientific Research Institute (Institute N.A. Semashko, Moscow), work is being done in order to fill the gap in this area. The present article is one of the parts of that investigation.

The culminating element in the history of studying alcoholism in pre-revolutionary Russia was the First All-Russian Congress on the Control of Heavy Drinking, which convened in Petersburg from 28 December 1909 to 6 January 1910. This congress was an extremely interesting event in Russian public life. In its work were reflected several of the socioeconomic phenomena typical of Russia in the early 1900s. An effort was made there to consider the problem of alcoholism in all its diversity from medical-health, socioeconomic, political, legal, and moral-ethical positions. The congress participants inevitably encountered a wide circle of social hygienic problems. The program of the congress was extremely broad. More than 150 papers were delivered and discussed at plenary sessions and three sections ("Alcohol and the Human Organism," "Alcohol and Society," and "Means of Controlling Alcoholism").

The Russian community was drawn more and more to the problem of controlling heavy drinking since the late 19th century. As it became more and more widespread, alcoholism became an extremely acute socioeconomic problem. In spite of the fact that the government hypothetically covered up the monopoly on sale of alcoholic beverages initiated in 1894 by applying to reduce heavy drinking, the share of revenue in the state budget from the sale of alcoholic beverages grew consistently. The income from liquor sales grew from 24.9 percent in 1894 to 30 percent in 1909 [1].

UDC 595.421

USSR

LUR'YE, A. A., NAUMOV, R. L., and ARUMOVA, YE. A., Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, USSR Ministry of Health, Moscow

"Radioactive Tracing of Ixodes persulcatus Ticks"

Leningrad, Parazitologiya, Vol 5, No 3, May/Jun 71, pp 281-188

Abstract: Two radiotracer methods were used for the longterm study of ticks (for periods up to five years), since the lifespan of the encephalitis-carrying tick is considered to be 3-5 years. The first method was difficult since it did not produce a sufficiently high radioactivity in the labeled larvae. The method involves subcuticular inoculation of 12 females with a 25 microcurie dose of labeled glucose saline solution. Larvae from these females numbered 1,500-2,300 within 16-20 days with a radioactivity of 0.2-2.2 pulses/sec and 0.8-7.2 pulses.sec per crushed larva. After one month, larvae became ticks. The maximum activity of larvae and ticks was measured and found to vary -- depending on the number of days between treatment and egg-laying. Larval activity ranged from 4 to 20 impulses/second, rarely from 30 to 60 impulses/second. The other radiotracer method used allows one to obtain labeled larvae and ticks by letting them feed on laboratory animals previously treated with

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LUR'YE, A? A., et al., Parazitologiya, Vol 5, No 3, May/Jun 71, pp 281-288

radioactive substances. White mice were used as radioactive blood donors, since they have a relatively high resistance to radioactivity in comparison with other animals. Labeled glycine was intraperitoneally administered to white mice. Ten mice were used to feed 4,000 ticks and close to 300 nymphs. Most of the radioactive ticks and nymphs were used in field experiments; 150 ticks and 30 nymphs were kept in the laboratory. It was found that the activity of live engorged larvae was 0.5 to 1.1 pulses/sec and that of crushed ones was 4 to 10 pulses/sec. The activity of nymphs was considerably higher. The second radiotracer method is recommended because a label of sufficiently high radioactivity could be obtained and maintained for a longer time period. The development phases of ticks can thus be easily followed by the second method.

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UDC 621.315.592:546.28

USSR

ARUSHANOV, A. Ya., GRIDNEVA, G. N., and YUMATOV, K. A.

"Autoepitaxia of Silicon During Vaporization by Electron Beam in Ultrahigh Vacuum"

V sb. Protsessy rosta kristallov i plenok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films -- Collection of Works), Novosibirsk, 1970, pp 238-245 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B100)

Translation: Autoepitaxial layers of Si are obtained by the deposition method in a vacuum of 10^{-5} -- $5 \cdot 10^{-9}$ mm of mercury. In order to assure high deposition rates, vaporization of the Si is conducted with the aid of a sharp-focused electron beam. The substrates are placed at 50--60 mm from the molten Si on a massive Mo disk which is heated by an electron gun. As substrates n-type Si wafers are used of (111) orientation, 25 mm in diameter and 0.3 mm thick with a resistivity of 80--100 ohm.cm, which are subjected beforehand to mechanical polishing with subsequent degreasing, or are chemically polished. Immediately preceding deposition, the substrates are briefly heated at increased temperatures. The process of deposition is conducted at a temperature of the substrate of 1100--1300° C and a deposition rate of 0.01--2.5 micrometer/min. The thickness of the film is 3--60 micrometer. It is shown that the density of packing defects depends to a considerable degree on the deposition rate, the vacuum in the working chamber, and the substrate temperature. The assumption is confirmed concerning an extension of the deposition rate during which perfect layers

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ARUSHANOV, A. Ye., et al., Protsessy rosta kristallov i plenok poluprovodn.
(Procedures for the Growth of Semiconductor Crystals and Films — Collection
of Works), Novosibirsk, 1970, pp 238-245 (from RZh-Elektronika i yeye
primeneniye, No 7, July 1971, Abstract No 7B100)

are obtained, with an improvement of the vacuum. It is found that conditions of
growth determine the properties of the Si film. In a vacuum of 10^{-8} -- 10^{-9} mm of
mercury, layers practically without defects are obtained of n- and p-type Si. The
resistivity of p-type film is 200--300 ohm.cm. On the basis of the monocrystalline
layers obtained, laboratory specimens were prepared of p-n junctions of the type
"film-film" with reverse voltage on the order of 500 v. 8 ref. V.G.

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USSR

UDC 530.145

AZIMOV, S. A., ARUSHANOV, G. G., and PIRMATOV, I. I.

"Stationary Values of the Differential Cross Section and Overlap Functions for High Energies"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 8, 1973, pp 73-79

Abstract: The extremal values obtained earlier (G. G. Arushanov, ZhETF, No 51, 1402, 1966; S. A. Azimov, et al., Izv. vuzov SSSR, Fizika, No 4, 103, 1970) for the differential cross section of elastic scattering in the diffraction cone region are generalized to the case of other angles. They are reduced to a form convenient for a comparison with experimental values which shows that all the external values are close to the experimental value. Similar results were also obtained in the case of binary inelastic reactions and overlap functions. When deriving the sample values for the overlap functions, one should preferably begin with the ordinary expansion in Legendre polynomials and not the integral representation, since the condition of unitarity in this representation, generally speaking, has a complicated form. In the case of small transmitted pulses in which the formulas can be obtained comparatively easily in both representations, they are comparable.

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USSR

UDC: 530.145

AZIMOV, V. A. and ARUSHANOV, G. G.

"Solving the Unitarity Condition for the Amplitude of the Two-Particle Process"

Tomsk, Izvestiya VUZ--Fizika, No 7, 1973, pp 108-114

Abstract: A solution is given for the unitarity condition of the amplitude for the two-particle inelastic process $1 + 2 \rightarrow 3 + 4$ by specifying the sum of the contributions of all possible inelastic reaction channels differing from this process and the amplitudes of the elastic scattering of

$$\begin{aligned} 1 + 2 &\rightarrow 1 + 2 \\ 3 + 4 &\rightarrow 3 + 4, \end{aligned}$$

if the unitarity condition for the collision operator is $SS^+ = 1$. A system of two algebraic equations is obtained. Their exact solution, expressing the coefficient of partial decay of the inelastic two-particle reaction given by the first process above, is determined. A formula obtained for the angular distribution in such reactions is compared with the experimental data with good results.

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USSR

UDC 530.145

AZIMOV, S. A., ~~ARUSHANOV, G. G.~~

"Van Hove Overlapping Function and Elastic Dispersion at High Energy Levels"

Tomsk, Izvestiya VUZ--Fizika, No. 10, 1971, pp 25-32

Abstract: The van Hove overlapping function $G(t)$ is defined as describing the contribution of nonelastic processes to the imaginary part of the elastic dispersion amplitude. By using a model of uncorrelated jets, van Hove found that function to be of the exponential form $G(t) = \sigma_{in} e^{kt}$. The purpose of this article is to investigate and clarify the validity of this form of the function in view of the fact that the model on which it is based does not result in quantitative agreement with experiments. To do this, the authors proceed in reverse: i.e., they find the form of the function from the unitary condition by substituting into the latter the experimentally established value for the diffraction peak, as was done in an earlier article by the same authors (Izvestiya VUZ SSSR, Fizika, No. 5, 1971, p 85). In the present article, a detailed investigation is made of the elastic

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AZIMOV, S. A. et al, Izvestiya VUZ--Fizika, No 10, 1971, pp 25-32

dispersion corresponding to the modified version of the function $G(t) = ae^{\alpha t} - be^{\beta t}$ obtained by the authors, and the van Hove model is discussed. Members of the Tashkent V. I. Lenin State University, the authors conclude by thanking V. K. Usharov for his interest in the work.

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USSR

UDC 539.171.015

AZIMOV, S. A., and ARUSHANOV, G. G., Tashkent State University imeni V. I. Lenin

"The Contribution of Statistical Processes to Elastic Scattering"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 6, 1971, pp 17-21

Abstract: In recent years rather precise experimental data have been obtained on the angular distribution of high-energy hadrons in elastic scattering covering a wide band of angles. It has been found that the differential scattering cross sections, forward and back, have peaks, and the size of the forward peak exceeds that of the backward peak by several orders of magnitude. It is also found that the ratio of these peaks with increase in energy grows approximately as the cube of the energy in horsepower. Furthermore, the angular distribution near 90° is almost isotropic and depends greatly on the energy. In this article the authors investigate the sensitivity of statistical theory as it applies to selecting the dependence of transparency on distance in an optical model. They show that with an exponential density distribution obtained in field theory, the statistical scattering is negligibly small in comparison with the corresponding diffraction scattering. They strictly summarize the alternating series encountered in the theory. They also mention certain difficulties which arise in com-

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USSR

AZIMOV, S. A., and ARUSHANOV, G. G., *Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika*, No 6, 1971, pp 17-21

paring theory and experiment. The article contains 10 bibliographic entries.

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USSR

UDC 539.171.016

AZIMOV, S. A. and ARUSHANOV, G. G., Institute of Nuclear Physics, Uzbek SSR
Academy of Sciences

"Oscillating Character of the Differential Cross Section Outside the Diffraction Peak"

Tashkent, Izv. Akad Nauk Uzbek SSR, ser Fiz-Mat Nauk, No 2, 1971, pp 53-56

Abstract: This article gives the formula for the scattering amplitude outside the diffraction peak which has an oscillating character. The authors find that previous results which are useful for finding the variation of partial amplitudes with energy can not be used to analyze the fine structure of the differential cross section. The authors give equations which prove that in the differential cross section there are local minima and maxima and that the oscillation period with growth in energy under certain conditions tends to zero and is approximately 1 rad. GeV/s under others. The article contains 23 equations and 8 bibliographic citations.

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USSR

UDC 539.171.016

AZIMOV, S. A. and ARUSHANOV, G. G., Tashkent State University imeni V. I. Lenin

"Behavior of the Van Hove Overlap Function Near the Diffraction Peak"

Tomsk, Izvestiya VUZ, Fizika, No 5, 71, pp 84-88

Abstract: The authors show that the condition of unitarity and the shape of the experimentally found diffraction peak determine the dependence of the Van Hove overlap function on the impulse transmitted in the region of the diffraction cone. The result is expressed by a linear combination of two exponents rather than by the ordinarily used single one. If the law governing the inelastic process is known, then theoretically on the basis of unitarity the corresponding elastic scattering can be computed, and vice versa. By substituting numerical values for the total cross section, the authors find that in the Van Hove model the diffraction picture must be produced by terms which correspond to the inelastic processes; they find this to be in complete accord with the diffraction scattering. The new results which the authors find may substantially change the solution to the condition of unitarity relative to the imaginary part of the amplitude for the given overlap function, which appears as a nonhomogeneous term in the integral equation.

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AZIMOV, S. A., et al, Izvestiya VUZ, Fizika, No 5, 71, pp 24-28

Finally, the authors briefly discuss the behavior of the functions $E(t)$ and $G(t)$ in the nonphysical region of the transmitted impulses $t > 0$. The article contains a bibliography of nine titles.

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USSR

UDC 539.171.016

A
AZIMOV, S. A., and ARUSHANOV, G. G., Tashkent State University imeni V. I. Lenin

"On the Steady-State Value of the Differential Cross Section for Elastic Scattering"

Tomsk, Izvestiya VUZ, Fizika, No 4, 1970, pp 103-108

Abstract: Steady-state values are considered for the differential cross section and its derivatives in terms of the transmitted pulse t for given values of the total interaction cross section σ_t , the total elastic scattering cross section σ_{el} , and the forward scattering amplitude. Since high energies are being considered, it was more convenient to use the integral representation for the amplitude instead of the expansion of the scattering amplitude in Legendre polynomials. Lower limits are obtained for the differential elastic scattering cross sections on the basis of the most general considerations and for its derivatives in terms of the transmitted momentum at the point $t = 0$ at high energies. The problem is reduced to finding the steady-state value or extremum of a certain functional. The results are expressed in terms of total cross sections that are measurable in experiment.

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ARUSHANYAN, E. B.

Pharmacology

UDRS 57365

30 October 1972

CERTAIN ASPECTS OF THE PARTICIPATION OF THE NEOSTRIATUM
IN BEHAVIORAL CONTROL

Article by E. B. Arushanyan, Department of Pharmacology, Gnila Medical
Institute, Moscow, Soviet Union, Physiologicheskii Zhurnal, Vol. 3, No. 3,
1972, pp 112-1301

This survey sums up data on the role of the caudatum and the putamen
in the organization of some behavioral forms. Striatic control is ensured
through well manifested inhibiting mechanisms. They are indicated by three
types of behavioral movements: suppression reaction, induced sleep, and
specific inhibition. At the same time, the neostriatum participates in the
formation of classical conditioned and instrumental reflexes. The article
deals with the possible neurophysiological mechanisms of the participation
of the neostriatum in behavioral control.

So far, from the functional viewpoint, the caudatum and the putamen,
known jointly as the neostriatum, have been considered as one of the most
puzzling formations of the central nervous system. Paradoxical though this
might seem, we have very limited ideas on the significance of such massive
accumulations of grey matter, most developed in mammals. It is generally
acceptable to reduce the role of the neostriatum to participation in
regulating movements as a leading component of descending motor systems
[110]. Yet, according to Ye. K. Sepp [34], the phylogenetic structure itself
developed as a center of most complex unconditioned reflexes "automatically
controlling behavior in the presence of certain signals." This thought
properly describes the numerous studies made in recent years. This enabled
us to classify the neostriatum as part of those segments of the brain
directly responsible for regulating complex behavioral forms.

The present survey has selected from the rich literary data already
acquired on this matter facts applying only to two aspects of the
physiology of the neostriatum, most essential from our viewpoint. A major
characteristic of this formation is the capability to ensure inhibition
control over behavioral reactions. The other noteworthy question is the
obvious correlation between the conditioned reflex animal behavior and the
integrity of basal ganglia. The following is a description of the

- 1 -

[I - USSR - C]

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THE INFLUENCE OF PENTYLENTETRAZOL ON BACKGROUND ACTIVITY OF SINGLE
CORTICAL NEURONES IN STIMULATION OF THE NUCLEUS CAUDATUS -U-
AUTHOR-(02)-ARUSHANYAN, E.B., BELOZERTSEV, YU.A. *A*

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 4, PP 75-78
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEURON, CEREBRAL CORTEX, CAT, INHIBITION, BLOOD PRESSURE,
ANALEPTIC DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1938/1580

STEP NO--UR/0219/70/069/004/0075/0078

CIRC ACCESSION NO--AP0106326

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106326

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PENTYLENTETRAZOL (5-10 MG-KG INTRAVENOUSLY) BIPHASICALLY CHANGES THE REACTIONS OF SINGLE NEURONES OF THE SENSORIMOTOR CORTEX OF NONANESTHETIZED CATS TO A DIFFERENT FREQUENCY OF STIMULATION OF THE NUCLEUS CAUDATUS. DURING THE FIRST ONE TWO MINUTES AFTER PENTYLENTETRAZOL INJECTION THERE WAS OBSERVED AN INTENSIFICATION OF CAUDATE INHIBITION AND INHIBITION OF FACILITATORY RESPONSES. SIMULTANEOUSLY THE BACKGROUND ACTIVITY OF NEURONES ACCELERATED. ON THE THIRD FOURTH MINUTE OF REGISTRATION THE INHIBITORY REACTIONS, ON THE CONTRARY, WEAKENED. THE INITIAL DEEPENING OF CAUDATE INHIBITION IS, APPARENTLY, THE RESULT OF RISE OF THE ARTERIAL PRESSURE CAUSED BY PENTYLENTETRAZOL.

UNCLASSIFIED

USSR

UDC: 669.721.042.62

ARUSOO, A. K., KARRO, Kh. Kh., LAUGIS, Yu. Ya., LOOTUS, Ya. K., LOYGOM, V. V.,
SAKKOS, Kh. A., TIYSMUS, Kh. A.

"MHD Drives for Pumping of Liquid Magnesium"

MGD v Metallurgii i Liteyn. Proiz-ve [MHD in Metallurgy and Foundry Production -- Collection of Works], Kiev, 1972, pp 126-130 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G202, by G. Svodtseva).

Translation: The Tallin Polytechnical Institute has developed and introduced to metallurgical production several induction MHD drives for feeding liquid Mg from a continuous refining furnace to a casting conveyor. The basic technical data are presented on the MHD drives and a schematic diagram of the power portions is presented. The drives operate under manual control. During tapping, the static head and hydraulic resistance are increased. This means that conservation of constant productivity requires that the supply voltage be increased by 1.2-1.8 times. The channel of the pump is replaced every three to five days. A diagram of the activity of the MHD drive under manual control is presented.

1/1

- 24 -

USSR

UDC 681.325.65

ARUSTAMYAN, V. YE., GRIGORYAN, L. A., KAZARYAN, S. YE., MOMDZHYAN, I. A.,
and SARKISYAN, A. YE.

"Transistor-Transistor Logic Circuit"

USSR Authors' Certificate No 314307, Cl. H 03 k 19/08, filed 26 Feb 70, published 26 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B137P)

Translation: There are well-known devices which contain an input multiemitter transistor (T) connected by the collector to the base of an intermediate T, whose collector and emitter are connected to the bases of two output series-connected Ts. The logic circuit described differs from these in that it contains a complementary T connected by its collector to the emitter of the intermediate T, by its emitter to the collector of the input T, and by its base through the resistor to the base of the input T. This makes it possible to increase the operating speed of the device.

1/1

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USSR

UDC 541.69+547.554

MNDZHOYAN, A. L., (DECEASED), MARKARYAN, E. A., ALEKSANYAN, R. A., KHORENYAN, G. A., BALAYAN, R. S., and ARUSTAMYAN, ZH. S., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Derivatives of Arylalkylamines. II. Constitution and Physiological Activity of Some Substituted Arylalkylamines and Their Derivatives"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 8, 1971, pp 703-713

Abstract: By condensing the chlorides of substituted phenylacetic, diphenylpropionic, and diphenylacetic acids with phenyl- and phenoxyisopropylamine, amides I were prepared. Reduction with LiAlH_4 converted compounds I into the substituted arylalkylamines II. By cyclizing the amides according to Bishler-Napieralski and then reducing, tetrahydroisoquinoline derivatives III were synthesized. By reacting phenylisopropylamine with indanones and reducing the ketimines that formed, aminoindans IV were obtained. Hydrochlorides of compounds II, III, and IV were effective as coronary dilatants (table). The formulas and properties of compound I and of the hydrochlorides of II and III are listed in tables.

1/1

USSR

UDC 621.382.27

AVAK'YANTS, G. M., Acad. Sci. Armenian SSR, ADAMYAN, Z. N., ARUT'CHNYAN, V. M., BARSEGYAN, R. S. and OGANESYAN, S. V.

"Some Studies of Zinc-Doped Silicon Diodes as Optron-Pair Elements"

Yerevan, Doklady Akademii Nauk Armyanskoy SSR, Vol 57, No 3, 1973, pp 152-157

Abstract: This article describes an investigation of the light-sensitivity of the time characteristics of the diode structures described in the title in order to determine the possibility of using them as photoreceptors in optron pairs. The volt-ampere characteristics were measured in a couple with a light-emitting diode over a broad range of temperatures. The diodes retained their light sensitivity throughout the entire range of temperatures, from -196° to $+80^{\circ}$ C. In contrast to many other devices, these diodes can be switched both from the low-conductivity to the high-conductivity state and from the high-conductivity to the low-conductivity state simply by changing the level of illumination.

1/1

USSR

UDC 547.94+547.834.2

MNATSAKANYAN, V. A., ~~ARUTYUNIAN, L. S.~~, ALEKSANYAN, R. A., and MARASHYAN, E. S.,
Institute of Fine Organic Chemistry imeni A. L. Mndzhoyana, Academy of Sciences
SSR (Yerevan)

"Modification of Alkaloid Structures. V. Some Alcohols of the Lupinine and
Epilupinine Series"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 66-72

Abstract: A series of eight amino alcohols, homologs derived from the
(-) lupinine (structure I, $R = CH_2OH$) and its diastereomer (+) epilupinine
(structure II, $R_1 = CH_2OH$) were synthesized from (-) lupinine.



The influence of their methiodides on the ring circulation was studied. Both
forms were obtained for $R = R_1 = CH_2CH_2CH_2OH$, $CH_2O-(CH_2)_3OH$; only I was obtained
for $R = CH_2CH(CH_2OH)_2$; and only II was obtained for $R_1 = CH_2CH_2OH$. A number of
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USSR

MNATSAKANYAN, V. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 66-72

physical constants, such as n_D^{18} , $[\alpha]_D^{17}$, R_f for thin-layer chromatography, IR spectral data and others, are given for the compounds and their methiodides.

2/2

USSR

ARUTYUNOV, A. V., BANCHILA, S. N., FILIPPOV, L. P., Moscow State University imeni M. V. Lomonosov

"Measurement of the Electrical Conductivity of Tin in the Temperature Range 1000-2500°K"

Moscow, Teplofizika vysokikh temperatur, No. 3, May/Jun 72, pp 547-550

Abstract: A technique is described for measuring electrical conductivity that makes it possible to obtain fairly reliable data in the temperature range 1000-2500°K and is based on the use of high-frequency induction heating of metal ampoules filled with the liquid metal to be studied. It is noted that the study of the specific electrical conductivity of liquid metals is an important element in investigating the nature of the liquid-metal state of a substance, but that the problem of the electrical resistance of liquid metals has been little studied up to the present time. The use of induction heating in the measurement device makes it possible to obtain a homogeneous temperature field in the heated sample and the device is convenient to use because of its low inertia, so that measurements can be carried out fairly rapidly. A description and circuit

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USSR

ARUTYUNOV, A. V., et al, Teplofizika vysokikh temperatur, No. 3,
May/Jun 72, pp 547-550

diagram of the device are given. A basic source of systematic error in measuring the specific resistance was the error in determining the geometry of the ampoule. The total maximum systematic error of the experiment varied from ~1 to ~2% in the temperature range 1000-2500°K. The electrical conductivity of tin of the following composition (in wt. %) was measured: 99.9995 Sn, $5 \cdot 10^{-5}$ Sb, 10^{-5} (Fe, Co, Au, Ag, Zn, Ar), 10^{-6} (Cu, Bi, Al). The results are shown graphically. The data agrees with the data of Cusac, Roll, and Motz within the limits of the systematic error of the experiment. The least squares method was used to obtain the following temperature dependence for the electrical resistance:

$$\rho = 54.42 - 0.661 \cdot 10^{-2} T + 1.522 \cdot 10^{-5} T^2 - \\ - 2.346 \cdot 10^{-9} T^3.$$

2/2

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1/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THERMAL PROPERTIES OF SOLID AND MOLTEN METALS AT HIGH TEMPERATURES
-U-
AUTHOR--(G5)--FILIPPOV, L.P., ARUTYUNOV, A.V., MAKARENKO, I.N., MARDYKIN,
I.P., TRUKHANOVA, L.N. *A*
COUNTRY OF INFO--USSR
SOURCE--TEPLOFIZ. SVISTVA TVERD. TEL VYS. TEMP., TR. VSES. KONF. 1966
REFERENCE--REF. ZH., FIZ. E. 1969, ABSTR. NO 12E4
DATE PUBLISHED-----66

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--THERMAL CONDUCTIVITY, LIQUID METAL, HEAT CAPACITY, ELECTRIC
CONDUCTIVITY, ELECTRIC WIRE, PHYSICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0607

STEP NO--UR/0000/69/001/000/0116/0129

CIRC ACCESSION NO--AR0126341

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AR0126341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF COMPLEX HEAT PARAMETERS, SUCH AS THERMAL COND., HEAT CAPACITY, AND ELEC. COND. OF SOLID AND MOLTEN METALS AT GREATER THAN 1000 DEGREES K ARE PRESENTED BY VARIOUS METHODS, BY USING CYLINDRICAL SYMMETRY TEMP. WAVES (THE SO CALLED RADIAL TEMP. WAVE), PLANE TEMP. WAVES, AND ALSO BY HEATING THE WIRE (OR THE FOIL STRIP) BY PASSING A CURRENT THROUGH IT.

UNCLASSIFIED

USSR

UDC 536.242+3:546.832

ARUTYUNOV A. V., BANCHILA, S. N., and FILIPPOV, L. P., Moscow State University, Kaliningrad Technical Institute of the Fish Industry and Fisheries

"Thermal, Electric, and Emissive Properties of Hafnium in the High-Temperature Range"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 2, Mar-Apr 72, pp 425--428

Abstract: Recent results of multiple investigations by the method of variable induction heating of thermal, electric, and emissive properties of hafnium (by wt. %: 99.3 Hf; 0.65 Zr; 0.04 SiO₂; 0.006 Al₂O₃) in the temperature range over 1000 °K are discussed. The investigated Hf-specimen, 98 mm long and 10 mm in diam., was calcined in vacuum by 1900 °K for ~2 hrs. The results are discussed by reference to tabulated data and diagrams showing the temperature dependences of the heat conductivity λ , the heat capacity c_p , the specific electric resistance ρ , and the monochromate coefficient $\varepsilon_{\lambda, \tau}(\lambda=0.65\mu)$, in

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USSR

ARUTYUNOV, A. V., et al., Teplofizika Vysokikh Temperatur, Vol 10, No 2, Mar-Apr 72, pp 425-428

comparison with data of other authors. Some characteristic properties of titanium, zirconium, and hafnium are singled out. Two illustr., one table, seven biblio. refs.

1/2 040 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE DESIGN OF THE CONTROL SYSTEM SPACECRAFT STABILISATION WITH
HUMAN OPERATOR -U-
AUTHOR-(05)-SOLODOVNIKOV, V.V., DMITRIEV, A.N., SEMENOV, V.V., ARUTUNOV, /
S.K., LOBUSOV, E.S.
COUNTRY OF INFO--USSR, FRANCE
SOURCE--INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, SYMPOSIUM ON
AUTOMATIC CONTROL, 3RD, TOULOUSE, FRANCE, MAR 2-6, 1970, PAPER, 18
DATE PUBLISHED--MAR70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, SPACE TECHNOLOGY
TOPIC TAGS--MAN, MAN MACHINE SYSTEM, MANUAL, SPACECRAFT RENDEZVOUS, ORBIT
CORRECTION, SPACECRAFT LANDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0006 STEP NO--FR/0000/70/000/000/0018/0018
CIRC ACCESSION NO--AT0117306
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0117306

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE ACTIVE ROLE OF MAN IN SOLVING NUMEROUS SPACE PROBLEMS SUCH AS RENDEZVOUS, MIDCOURSE CORRECTION, LANDING, ETC. ALL THESE OPERATIONS INCLUDE MANUAL SPACECRAFT STABILIZATION. BECAUSE OF THEIR GREAT IMPORTANCE, ANALYTICAL DESIGN IS NECESSARY. ATTENTION IS GIVEN TO THE DYNAMIC AND INFORMATION RESEARCH OF HUMAN OPERATOR FEATURES. THE MAJOR REASON FOR MANUAL TRACKING IS THE NECESSITY FOR CONSTANCY OF INFORMATION TRANSMISSION RATE. THE CORRELATION BETWEEN RANDOM DELAY TIME AND INPUT PROVIDED AN OPPORTUNITY TO OBTAIN A STOCHASTIC DYNAMIC MODEL OF THE OPERATOR.

UNCLASSIFIED

USSR

UDC 591.18

POPOV, A. K., VOLKOV, A. M., ARITYUNOV, S. K., and LOBUSOV, Ye. S., Institute of Biomedical Problems, Ministry of Public Health USSR, Moscow Aviation Institute imeni S. Ordzhonikidze, and Moscow Higher Engineering Technical School imeni N. E. Bauman

"Mechanisms of Spontaneous Rhythmic Activity of the Cerebral Cortex"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 1, Jul/Aug 70, pp 245-247

Abstract: A discussion is presented of possible models in which stimulation of the cortex evokes depolarization of dendrites and excitation of internuncial neurons, which in turn show an inhibiting effect followed by hyperpolarization of dendrites. The process represents the beginning of rhythmic activity. It is assumed that the spontaneous rhythmicity of the isolated cortex is the result of bioelectrical sequential changes in the types of interactions between the dendrites and the internuncial neurons. In other words, the possibility of cortical rhythm exists because of the structural connections of the elements composing it. Thus, the systems and the subsystems interact. On the basis of analysis and the results of the modeling procedures, it is assumed that the spontaneous rhythmic activity of the nerve structures of the cortex is ensured
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USSR

POPOV, A. K., et al, Doklady Akademii Nauk SSSR, Vol 193, No 1, Jul/Aug 70, pp 245-247

by a mechanism of strict sequential change in the types of interactions of the form

$$A \overset{+}{\rightleftharpoons} B \rightarrow A \overset{-}{\rightleftharpoons} B \rightarrow A \overset{+}{\rightleftharpoons} B \rightarrow A \overset{-}{\rightleftharpoons} B \dots$$

where A and B are mutually interacting subsystems.

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Acc. Nr:

AP0040900

Ref. Code:

UR 0103

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr 1, pp 192-197

APPLICATION OF THEOREM OFFOLD IN COMPLEX DOMAIN
FOR INVESTIGATION OF NONSTATIONARY CLOSED-CYCLE SYSTEMS

Arutyunov, S. K.

There is considered the problem of determining an equivalent transfer function for a closed-cycle nonstationary system of a certain type set by its structural scheme. The solution is obtained in the form of a matrix product of the column, the Laplace transformations of the equivalent input signal and the matrix of the Laplace transformations which is determined by the dynamics of the stationary part and the poles of the variable coefficient. The methods of solving the problem are illustrated with examples.

REEL/FRAE
19750639

ARUTYUNOV, SS

SO: JPKS 55935
09 May 1972

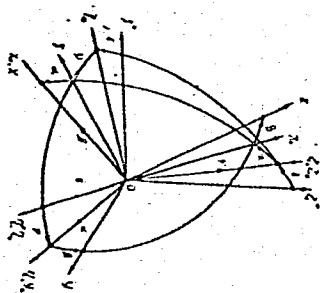
HOVE'S GYROSCOPE ON A UNIFORMLY ROTATING BASE

[Article by S. S. Arutyunov and G. N. Dzhurav; Leningrad, Priboirostroitel'nyy, Russian, Vol 15, No 2, 1972, pp 80-84]

UDC 531.383.62-752.4

In this article the possibility of constructing a free gyroscope on a base according to Hove's scheme is analyzed.

Let us assume that a Hove's gyroscope [1] is placed on a base rotating with the constant velocity γ around its axis η_0 , perpendicular to the axis τ of the gyroscope drive (see sketch). We shall determine the position of a coordinate trihedron $\xi\eta\zeta$ connected with the base, with respect to a stationary system of reference $\xi^*\eta^*\zeta^*$ by an angle γ . Assuming that the torsion rigidities are finite only for twisting, we shall determine the gyroscope position with respect to the base by the angles φ , α , and β .



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Gloria

USSR

UDC: 531.383+62---752.4

ARUTYUNOV, S. S., and DMITRIYEV, G. N.

"Howe Gyroscope on a Uniformly Rotating Base"

Leningrad, Priborostroyeniye, No 2, 1972, pp 80-84

Abstract: Assuming that a Howe gyroscope is set up on a base rotating at constant velocity around an axis perpendicular to the drive axis, the authors analyze the possibility of designing a free gyroscope based on the Howe design. The equation of motion of the system is derived from the Lagrangian equations of the second kind under the assumption that the moment of the resistance at the drive shaft is balanced by the rotational moment. The problem of whether the parameters of the Howe gyroscope can be chosen such that, with the base rotating, the longitudinal axis of the rotor shaft maintains its position in space making only small periodic oscillations, is solved. Three possible conditions of the gyroscope's motion are examined. The authors, members of the Kazan Aviation Institute, find that forced motions of the Howe gyroscope cannot be completely eliminated.

1/1

USSR

531.383

A
ARUTYUNOV, S. S.

"Error in a Two-Stage Gyroscopic Angular Velocity Transducer Resulting From Angular Oscillations of the Base"

Tr. Kazansk. Aviats. In-Ta [waks of Kazan' Aviat. Inst], No. 99, 1969, pp 44-48
(translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.436, unsigned)

Translation: A theoretical analysis is performed of the presence of systematic velocity components in the angular oscillations of a syroscope base. Long-term angular oscillations of the object and the corresponding constant component of velocity can lead to extended correction failures of many devices.

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- 6 -

Microbiology

USSR

UDC 576.851.45+576.852.211.094.9[:576.858.9

ARUTYUNOV, Yu. I., Rostov-na Donu Anti plague Institute

"Biological Characteristics of Plague and Pseudotuberculosis Bacteriophages"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 70,
pp 106-111

Abstract: Plague and pseudotuberculosis bacteriophages constitute two independent species. The former (22 races studied) comprise a single serological type (I) and the latter (4 races), two types (I and II). Of the various criteria tested as means of differentiating plague from pseudotuberculosis bacteriophages, their serological properties were the most unambiguous and useful. Specificity and range of action, adsorption capacity, single developmental cycle, and the influence of certain physical factors (temperature, ultraviolet irradiation) and chemical agents (urea, methylene blue) had only auxiliary value for typing purposes. Plague bacteriophage 2,662 No. 1 is recommended as an indicator, owing to its high lytic activity, relatively short latent period, wide range of action within a homologous species, and high specificity.

1/1

USSR:

UDC 661.183.7

KULIYEV, Al. M., GRIGORYAN, E. V., and ARUTYUNOVA, E. G., Bakinsk Branch,
All Union Scientific Research Institute of Gases

"Study of the Effect of Chemical Composition of a Displacer on the Adsorption
Capability of Silica gel"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 5-6 (71-72), 1971, pp 90-92

Abstract: It was shown in earlier work that substituting high molecular weight fractions of petroleum for the water molecules of a hydrogel yields silica gel with high adsorption. This particular study was devoted to individual fractions of petroleum, especially to their effect on the gel. The study showed that treatment of silica gel with a displacer containing primarily aromatic hydrocarbons will yield an adsorbent with very fine pores, and high activity. When treated with parafine hydrocarbons, the pores in the adsorbent become coarse.

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USSR

UDC: 911.3.616.831-002

BAROYAN, O. V., MEDVEDEVA, G. I., SHATKIN, A. A., PICHUSHKOV, A. V., BESKINA, S. R.,
ARUTYUNOVA, I. A., MARTYNOVA, V. R.

"Immunological-Epidemiological Research on Tick-Borne Encephalitis"

V sb. Materialy XV Vses. s'ezda epidemiologov, mikrobiologov i infektsionov,
tezisy dokl. Ch. I (Proceedings of the 15th All Union Conference of Epidemiolo-
gists, Microbiologists and Specialists in Infectious Disease, Thesis Reports
Part I -- collection of works) Moscow, 1970, pp 186-187 (from RZh-36. Meditsin-
skaya geografiya, No 1, Jan 71, Abstract No 1.36.86)

/No abstract/

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--A CHROMIUM CATALYST -U-
AUTHOR--(04)-GUREVICH, V.R., GOLIKOVA, V.I., ARUTYUNOVA, K.M., DALIN, M.A.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 186,390
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(9)
DATE PUBLISHED--03MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHROMIUM, CHEMICAL PATENT, CATALYST, CATALYTIC POLYMERIZATION,
ALKENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/0847 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0136281
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136281

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CR CATALYST, HAVING A HIGHLY DEVELOPED SURFACE, FOR POLYMN. OF OLEFINS, IS PREPD. BY SATG. SILICA GEL WITH A SOLN. OF CR ANHYDRIDE IN AN ORG. LIQ., E.G. IN ACETONE.
FACILITY: VSESOUZNYI NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT PO POLUCHENIYU I PERERABOTKE NIZKOMOLEKULYARNYKH OLEFINOV S OPYTNYM ZAVODOM.

UNCLASSIFIED

USSR

UDC: 621.375.82

ARUTYUNYAN, A. G., TUNKIN, V. G., and CHIRKIN, A. S.

"Light-Power Interferometer with High Resolution for Measuring Spatial Coherence of Optical Radiation"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 111-113 (from RZh--Fizika, No 7, 1973, Abstract No 7D1069)

Translation: The design of an interferometer constructed to measure small radii of spatial coherence of light radiation, which has a number of advantages over the Young and Mach-Zehnder interferometers used for the same purpose, is described. Results are given of measurements using the described interferometer for the space correlation function of helium-neon laser radiations and aluminum-yttrium garnet laser oscillations. These latter oscillations had a coherence radius of ~ 0.1 mm in the oscillation of many transverse modes for a beam radius of 5 mm. Authors' abstract

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USSR

UDC: 621.391.19

ARUTYUNYAN, A. M., Irkutsk Polytechnical Institute

"A Device for Pattern Recognition"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 15, Apr 73, Author's Certificate No 374636, Division G, filed 20 Oct 70, published 14 Jul 73, pp 112-113

Translation: This Author's Certificate introduces a device for pattern recognition which contains a lens optically coupled to a transmitting television tube whose output is coupled through a video amplifier and frame and line switches to a flip-flop module connected to the input of a classifier. The device also contains a control unit which is connected to the flip-flop module and to the output of the device, through frame and line distributors to the frame and line switch module, and through an image coordinate changing module to the objective lens and the television transmitting tube. In addition, the device contains a linear voltage generator. As a distinguishing feature of the patent, recognition reliability is improved by adding a block of random voltage generators and a commutator. The commutator inputs are connected respectively to the outputs of the linear

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USSR

ARUTYUNYAN, A. M., USSR Author's Certificate No 374636

voltage generator and to the outputs of the block of random voltage generators, while the commutator output is connected to the deflecting system of the television transmitting tube.

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- 47 -

Organometallic Compounds

USSR

UDC 548.737

KUZ'MINA, L. G., BOKIY, N. G., STRUCHKOV, YU. T., ARUTYUNYAN, A. V., RYBIN, L. V., and RYBINSKAYA, M. I., Institute of Metalorganic Compounds, Academy of Sciences USSR

"Structure of 3,6-Diphenylpyridazino-diferrum-triphenylphosphine-pentacarbonyl"

Moscow, Zhurnal Strukturnoy Khimii, Vol 12, No 5, Sep-Oct 71, pp 875-882

Abstract: To determine objectively the structure of diarylpyridazine complexes with iron carbonyls, a complete roentgenographic analysis of the monophosphine complex $[(C_6H_5)_2C_4H_2N_2] \cdot [Fe_2P(C_6H_5)_3(CO)_5]$ was carried out. The binuclear molecule contains $Fe(CO)_3$ and $Fe(CO)_2PPh_3$ groups connected with a Fe-Fe bond and two nitrogen bridge atoms of the pyridazine moiety. Fe atoms are of the octahedral coordination, they are highly strained due to the formation of tetrahedral cluster system Fe_2N_2 . The crystals are monoclinic with $a = 23.98$, $b = 18.34$, $c = 8.39$ Å, $\beta = 107^\circ 20'$, and $N = 4$. The structure was obtained by the heavy atom method and refined by the least squares method to $R = 12\%$. The pyridine ring acts as a diazo-bridge between two iron atoms also connected by the metal-metal bond. The most interesting bond lengths are: Fe-Fe = 2.53; N-N = 1.43; Fe-N = 1.92 Å. 1/1

USSR

UDC 621.396.677.012.12.001.57:535

ARUTYUNYAN, Dzh. S., KUROCHKIN, A. P.

"Optical Modeling of the Radiation Patterns of Antennas From a Radio-hologram of the Field in the Fresnel Zone"

Moscow, Radiotekhnika i Elektronika, Vol 26, No 9, Sep 71, pp 1623-1628

Abstract: The authors consider the particulars of reconstructing the radiation patterns from a radiohologram of the field measured in the Fresnel zone. Expressions are derived for displacement of the plane of the radiation pattern from the focus of the lens, and the correspondence is found between the angular coordinates in the field of the antenna and the Cartesian coordinates in the plane of the radiation pattern. A relationship is found for calculating defocusing of the antenna through the distance between the plane of the radiation pattern and the plane of optimum focusing.

1/1

- 13 -

USSR

ARUTYUNYAN, R. S., ARUTYUNYAN, Dz. S.

UDC: 621.396.677:621.317.743

"Optical and Radio Holography in Antenna Measurements"

Dokl. Nauchno-tekhn. seminar "Metrol. v radioelektron." Tesisy. Ch. 1 (Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics, Summaries, Part 1), Moscow, 1970, p 92 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6384)

Translation: The authors consider the possibility of recording and later reproducing electromagnetic waves in the optical frequency range. Possible systems for radio holography are given. The advantages of a system of radio holography with a reference signal are noted. Consideration is given to the possibility of simulating "slow" reference waves by utilizing a phase change in the input reference signal to produce a spatially separate signal wave in the optical range. Radio holography circuit parameters are determined on the basis of requirements for accuracy in reproduction of the recorded rf field in the optical region. Use of the method of radio holography is especially valuable for modeling the radiation patterns of large antennas in the optical region. An experiment is described in radio holographic recording of the emission field in the aperture of a parabolic antenna in the 8 mm wavelength range. The problem of changing from radio holograms to optical holograms is considered. An optical system is given for reproducing the field at the aperture of an antenna and subsequent modeling of the radiation pattern using the techniques of coherent optics. The problem of accuracy in modeling antenna radiation patterns is experimentally analyzed. Resumé.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ACTIVATING METHYLTHIO DERIVATIVES OF PURINE AND PYRIMIDINE IN
REACTIONS WITH WEAKLY NUCLEOPHILIC COMPOUNDS -U-
AUTHOR--(05)-GRACHEVA, YE.P., VOLKOVA, Z.S., GUNAR, V.I., ARUTYUNYAN, E.A.,
ZAVYALOV, S.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 420-3

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--URACIL, PURINE, PYRIMIDINE, HYDROGEN SULFIDE, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0854

STEP NO--UR/0062/70/000/002/0420/0423

CIRC ACCESSION NO--AP0119758

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119758

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. 6,METHYLTHIOPURINE (I) AND HGCL SUB2 IN ETOH GAVE A 1:1 COMPLEX, DEOCPD. 215-18DEGREES, WHICH WITH H SUB2 S REGENERATED THE PURINE. PHNH SUB2 AND HGCL SUB2 WITH I GAVE 77PERCENT 6,ANILINOPURINE, M. 284-6DEGREES, WHILE RHO-CHLOROANILINE GAVE 6,(RHO,CHLOROANILINO) PURINE, M. 317-19DEGREES. I AG SALT AND ACCL IN C SUB6 H SUB6 GAVE THE 9,AC DERIV. OF I, M. 134-6DEGREES, WHICH WITH PHNH SUB2 3 HR AT 110DEGREES GAVE 45PERCENT 6,ANILIO, 9,ACETILPURINE, M. 271-2DEGREES, WHILE HOLDING WITH AQ. MENH SUB2 2 HR GAVE 71PERCENT 6,METHYLAMINO,9,ACETILPURINE, M. 219-21DEGREES. S, METHYL,6,METHYL,2,THIOURACIL AND HGCL SUB2 TREATED WITH BUOH IN THE PRESENCE OF PRIDINE 6 HR AT REFLUX GAVE 37PERCENT 2,BUTOXY,4, HYDROXY,6,METHYLPYRIMIDINE, M. 87-8DEGREES, WHICH WITH AQ. HCL GAVE 6,METHYLURACIL. SIMILARLY, S,METHYL,2,THIOURACIL GAVE 2, BUTOXY,4,HYDROXYPYRIMIDINE, M. 85-6DEGREES. THUS, HGCL SUB2 CATALYZES AMINATION OF I AND ALCOHOLYSIS OF S-ME THIOURACILS. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--REACTION OF URACILS WITH PHOSPHORIC ACID AMIDES -U-
AUTHOR--(03)-ARUTYUNYAN, E.A., GUNAR, V.I., ZAVYALOV, S.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 904-9
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--URACIL, PHOSPHORIC ACID, AMIDE, CHEMICAL REACTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0444 STEP NO--UR/0062/70/000/004/0904/0909
CIRC ACCESSION NO--AP0131083
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131083

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMINE HCL AND POCL SUB3 CATALYZE THE REACTIONS OF URACILS WITH AMIDES OF PHOSPHORIC ACID IN WHICH POSSIBLY THE CARBONYL FORMS OF URACILS TAKE PART THROUGH A 4 CENTER REACTION INTERMEDIATE. HEATING URACIL WITH ME SUB2 NH. HCL AND (ME SUB2 N)SUB3 PO 1 HR AT 235DEGREES GAVE 75PERCENT 2,4 BIS(DIMETHYLAMINO) PYRIMIDINE, M. 38-41DEGREES; WITHOUT ME SUB2 NH.HCL THE YIELD WAS BUT 56PERCENT IN 2.5 HR. (FORMULAS SHOWN ON MICROFICHE). FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 539.26 + 547.466

AVOYAN, R. L., ARAKELOVA, E. R., and ARUTYUNYAN, E. G., Institute of Fine Organic Chemistry Imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, (Yerevan)

"Conformation and Physiological Activity of Molecules. VI X-ray Structural Analysis of the γ -Diethylaminopropyl α -Diphenylacetate Hydrobromide"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 9, 1973, pp 713-719

Abstract: A complete x-ray structural analysis of the title compound has been carried out. Its crystals are monoclinic. The parameters of the unit cell are found to be: $a = 17.26$, $b = 7.43$, $c = 17.45 \text{ \AA}$, $\beta = 110.5^\circ$, $Z = 4$, space group $P2_1/c$. The structure has been determined by the heavy atom method using the least square calculations up to $R = 0.197$. The nitrogen atom is attached to bromine through a 3.38 \AA hydrogen bonding. The physiological activity characteristic of the title compound is discussed by comparing its structural relationship with those of acetylcholine and L(+)muscarine.

- END -

1/1

CSO: 1841-W

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--X RAY DIFFRACTION STUDY OF DERIVATIVES OF TRYPSIN INHIBITED BY
DIISOPROPYL FLUOROPHOSPHATE -U-
AUTHOR--(05)-VAYNSHTEYN, B.K., ARUTYUNYAN, E.G., ZAYTSEV, V.N., KURANOVA,
I.P., GREBENKO, A.I. *A*
COUNTRY OF INFO--USSR
SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 167-8
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRYPSIN, PLATINUM COMPOUND, MERCURY COMPOUND, ENZYME ACTIVITY,
INHIBITION, FLUORINATED ORGANIC COMPOUND, ORGANIC PHOSPHORUS COMPOUND, X
RAY DIFFRACTION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/0223

STEP NO--UR/0070/70/015/001/0167/0168

CIRC ACCESSION NO--AP0119219

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119219

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PT AND HG DERIVS. OF TRYPSIN WERE PREPD. BY THE DIFFUSION METHOD, AND THE COORDINATES OF THE PT AND HG ATOMS IN THE CRYSTALS WERE DETD. BY X RAY DIFFRACTION. THE UNIT CELL PARAMETERS ARE A 58.65 PLUS OR MINUS 0.01, B 67.05 PLUS OR MINUS 0.01, AND C EQUALS 54.75 PLUS OR MINUS 0.02 ANGSTROM FOR THE PT DERIV. AND A 58.58 PLUS OR MINUS 0.02, B 67.42 PLUS OR MINUS 0.02, AND C 54.75 PLUS OR MINUS 0.02 ANGSTROM FOR THE HG DERIV. THE MAX. DEVIATIONS FROM THE PARAMETERS OF THE INITIAL TRYPSIN UNIT ALL WERE 0.34 AND 0.06 ANGSTROM FOR THE PT AND HG DERIVS., RESP. THE COORDINATES OF THE HG ATOM WERE DETD. TO BE X EQUALS 0.962, Y EQUALS 0.035, AND Z EQUALS 0.195. FOR PT, HOWEVER, CALCNS. YIELDED 2 VARIATIONS OF THE COORDINATES. FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 541.69+543.422.8

AVOYAN, R. L., ARAKELOVA, E. R., AVETISYAN, A. A., and ARUTYUNYAN, E. G.,
Institute of Fine Organic Chemistry Imeni A. L. Mndzhoyan, Acad. Sc. Armenian
SSR (Yerevan)

"Conformation and Physiological Activity of Molecules. I. Roentgenographic
Study of the γ -Diethylaminopropyl Ester Hydrobromide of α -Ethoxydiphenyl-
acetic Acid"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 8, 1972, pp 702-709

Abstract: A total X-ray structural analysis has been carried out on the hydro-
bromide of γ -diethylaminopropyl ester of α -ethoxydiphenylacetic acid -- an
analog of the medicinal preparation etpenal with both the nicotino- and mus-
caryolytic activity. On the basis of three dimensional series of Petterson and
Fourier analysis and by the method of least squares up to $R = 0.165$ the
crystalline structure was determined. The elementary cell is monoclinic with
following parameters: $a = 19.87$, $b = 7.71$, $c = 16.78$, $\beta = 114.5^\circ$, $N = 4$ (coordi-
nation number P_{21}). The number of independent non-zero reflections is 640.

The coordination of the N-atom is represented by a "deformed" tetrahedron, three
sites being occupied by carbon atoms C_{19} , C_{20} , and C_{22} , the fourth -- by the
hydrogen atom of the N-H...Br hydrogen bond. The H...Br distance is 3.44 \AA .
1/1

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USSR

UDC 541.69+543.422.8

MNDZHOYAN, A. L. (Deceased), AVOYAN, R. L., AVETISYAN, A. A., and ARUTYUNYAN, E. G., Institute of Fine Organic Chemistry Imeni A. L. Mndzhoyan, Acad. Sc. Armenian SSR (Yerevan)

"Conformation and Physiological Activity of Molecules. II. X-ray Structural Analysis of Diteline"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 8, 1972, pp 710-717

Abstract: Final results of the x-ray structural analysis of diteline are reported. The compound -- the dimethiodide of dimethylaminoethyl ester of succinic acid -- is used in medicine as a muscle relaxant. Three dimensional x-ray diffraction analysis showed the parameters of the elementary cell to be: $a = 12.79$; $b = 8.29$; $c = 9.73 \text{ \AA}$; $\beta = 96.8^\circ$; $N = 2$; and the coordination number = P_{21} . The number of independent reflections was 630. The structure was determined by the heavy atom method and correlated by Fourier analysis and by the method of least squares up to $R = 0.135$. The molecule has the shape of a horse-shoe. The N^+CCO fragments are gauche. The $N^+ \dots N^+$ interatomic distance has been determined to be 7.75 \AA .

1/1

USSR

UDC: 517.512

ARUTYUNYAN, F. G.

"Representing Functions Measurable Almost Everywhere by Convergent Series"

Moscow, Matematicheskii Sbornik, No 4, 1973, pp 483-520

Abstract: The following theorem is stated: There exists a trigonometric series

$$\frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos nt + b_n \sin nt$$

with the characteristic that, for any measurable function $f(t)$ defined in $[0, 2\pi]$ -- where $f(t)$ may be $+\infty$ and $-\infty$ in positive-valued sets -- and for any natural number N , there is a partial series of this series

$$\sum_{k=1}^{\infty} a_{n_k} \cos n_k t + b_{n_k} \sin n_k t, N < n_1 < \dots < n_k < \dots,$$

convergent to $f(t)$ almost everywhere in the set in which the function $f(t)$ is finite, and convergent in measure to $f(t)$ in $[0, 2\pi]$. The present article proposes a method of proving this theorem for a broad class of systems of functions which includes almost all classical, fully orthonormalized systems and all previously considered representational systems. It is noted that the fundamental results of this article was communicated to the International Congress of Mathematicians, held in 1966.

1/1

- 4 -

USSR

ARUTYUNYAN, G. M. (Institute of Physical Studies, Armenian Academy of Sciences)

"Proper-Dimension-Quantized Semiconductors in the Field of a Strong Electromagnetic Wave"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR: Fizika; November-December, 1972; pp 413-7

ABSTRACT: The article concerns the interaction of strong, classical electromagnetic waves with semiconductor films. The problem allows an exact solution for the resonance approximation. The exact wave functions and electron spectrum are obtained, taking into account the zonal structure. The characteristic feature of the energy spectrum is the existence of an "anisotropic" gap depending on the field and quantization size and located at some resonant momentum value p_0 . It is shown that population inversion takes place when $p < p_0$.

The article includes 18 equations and two figures. There are seven bibliographic references.

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USSR

ARUTYUNYAN, G. M., and KAZARYAN, E. M., (Engineering-Physics Institute,
Academy of Sciences, Armenian SSR, and The Yerevan State University)

"Self-Absorption in Thin Semiconductor Films in the Field of an Intense
Electromagnetic Wave"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Fizika, Vol 8, No 5, 1973,
pp 339-342

Abstract: The energy spectra of charge carriers contain gaps which are determined by the angle between the direction of the electron impulse and the tension vector of the electric field wave. In the present study it was shown possible to determine the size of the gap from interzonal absorption of a weak electromagnetic wave in the presence of an intense wave in dimensionally quantified semiconductor films. The results showed that the presence of the gap leads to a zero absorption coefficient in the region in which the frequency is changed. Determinations of dimensional quantification make it possible to calculate the size of the gap (by changing film thickness) and the regions of transmitted and amplified frequencies.

1/1

USSR

UDC 615.212.547.834.47.0121

NIKITSKAYA, YE. S., ARUTYUNYAN, G. S., SHVARTS, G. YA., MASHKOVSKIY, M. D.,
and YAKHONTOV, L. N., All Union Scientific Chemical-Pharmaceutical Research
Institute imeni S. Ordzhonikidze, Moscow

"Synthesis and Pharmacological Study of Substituted 2,2,6,6-Tetramethyl-4-
-aminopiperidyl-4-carboxamides"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7m No 9, Sep 73, pp 16-19

Abstract: Derivatives of 2,2,6,6-tetramethyl-4-aminopiperidyl-4-carboxamide
(I) -- analogues of the pyrithramide -- were synthesized in search for new
analgesic agents. The reaction sequence was based on triacetoneamine being
converted through the triacetoneaminecyanohydrine to 2,2,6,6-tetramethyl-4-
-(N-substituted)amino-4-cyanopiperidines which could be converted with 90%
sulfuric acid at 100° to (I). Further alkylation of these carboxamides was
very difficult. Pharmacological studies carried out on these products showed
that steric hindrance around the cyclic nitrogen atom with methyl groups did
not improve the analgesic or other pharmacological properties of the parent
agents.

1/1

- 71 -

USSR

UDC 547.752

VINOGRAD, L. KH., SHALYGINA, O. D., BULATOVA, N. N., KOSTYUCHENKO, N. P., ZYKOVA, T. N., MIKERINA, A. L., ARUTYUNYAN, G. S., and SUVOROV, N. N., All-Union Scientific Research Chemical and Pharmaceutical Institute imeni Sergo Ordzhonikidze, Moscow

"Indole Derivatives. Report 72. Addition of Sulfur-Containing Reagents to Nitrovinylindole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 5, No 12, Dec 71, pp 15-17

Abstract: The addition of sulfur-containing nucleophilic reagents to unsaturated nitro-compounds of the indole series was studied. The addition reactions of seven new indole derivatives are detailed and the addition products identified. In-vitro therapeutic tests revealed a weak germistatic activity (500-250 mcg/ml) in 1-benzylmercapto-1-(1'-acetylindolyl-3)-2-aminoethane chloralhydrate relative to 17 microorganism strains. The study included general effects, effects on smooth muscles, circulation and respiration body temperature, interaction with hexenal and iprasid, antihistaminic, antispasmodic and anesthetic effects. The compound revealed weak pharmacological activity, weak spasmogenic action and slightly increased capillary permeability. It appears to promote the somnifacient effect of hexenal. The LD₅₀ in intravenous administration to mice is 45 ng/kg. (1 table, 1 biblio. reference)

1/1

USSR

ASKAR'YAN, G. A.; ARUTYUNYAN, E. N.; POGOSYAN, V. A. (Lebedev Physics Institute, USSR Academy of Sciences)

"Multiphoton Processes in the Focus of a Powerful Laser Beam with Allowance for Expansion of the Active Volume"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; March, 1970;
pp 1020-4

Abstract: A multiphoton process in the focus of laser radiation or near the focus points of individual modes is considered. It is shown that for high radiation densities saturation and expansion of the active volume occur. This appreciably modifies the dependence of the number of events on the field strength, $N(E) \propto E^k$; in particular, in very strong fields $N \propto E^3$ and does not depend on quantization of the process. Various types of field distribution -- e.g., a cone with a focus constriction or a Gaussian radial distribution -- are considered. Results and conclusions of experiments on multiphoton ionization of atoms and molecules by a laser beam are critically considered. It is noted that the results obtained can be employed for determining the initiating volume of multiphoton ionization in a flash of light.

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Acc. Nr: **AP0043777**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 1020-1024

**MULTIPHOTON PROCESSES IN THE FOCUS
OF A POWERFUL LASER BEAM WITH ALLOWANCE
FOR EXPANSION OF THE ACTIVE VOLUME**

Arutyunian, I. N.; Askar'yan, G. A.; Pogosyan, V. A.

A multiphoton process in the focus of laser radiation or near the focus points of the modes is considered. It is shown that for high radiation densities saturation and expansion of the active volume occurs. This appreciably modifies the dependence of the number of acts on the field strength, $N(E) \sim E^k$; in particular in very strong fields $N \sim E^3$ and does not depend on quantization of the process. Various types of field distribution, e.g. a cone with a focus constriction or a Gaussian radial distribution are considered. Results and conclusions of experiments on multiphoton ionization of atoms or molecules by a laser beam are critically considered. It is mentioned that the results obtained can be employed for determining the initiating volume of multiphoton ionization in a light spark.

REEL/FRA
19770185

2162h

1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE SIGNIFICANCE OF BODY REACTIVITY IN FORMATION OF ADHESIONS IN
EXPERIMENTAL TALCUM ADMINISTRATION INTO THE ABDOMINAL CAVITY -U-
AUTHOR-(03)-MINASYAN, A.M., TERKASPAROVA, M.R., ARUTYUNYAN, L.O.
COUNTRY OF INFO--USSR
SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIA, 1970, NR 2, PP
48-50
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ADHESION, ANIMAL PHYSIOLOGY, INHIBITION, TRYPSIN, EXPERIMENTAL
SURGERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0646 STEP NO--UR/0481/70/000/002/0048/0050
CIRC ACCESSION NO--AP0108857
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0108857
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADHESIONS FORM IN THE SENSITIZED
ANIMALS TWICE OFTENER THAN IN THE CONTROL GROUP. IN DESENSITIZED
ANIMALS ADHESIONS WERE SEEN IN ONLY ONE THIRD OF CASES. ADMINISTRATION
OF LIDASE AND TRYPSIN TO SENSITIZED ANIMALS PREVENTS FORMATION OF
ADHESIONS. FACILITY: KAFEDRA GOSPITAL'NOY KHIRURGII, KAFEDRA
PATOLOGICHESKOY ANATOMII AND KAFEDRA PATOLOGICHESKOY FIZIOLOGII
YEREVANSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 547.94

MNATSAKANYAN, V. A., ARUTYUNYAN, L. S., and AGABABYAN, E. YU., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Modification of the Structure of Alkaloids. Synthesis of Amino Derivatives of Lupinane and Epilupinane"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 4, 1973, pp 325-331

Abstract: With the view of continuing a study of the pharmacological properties of derivatives of lupinane and epilupinane, the diastereomeric aminomethyl- and aminoethylquinolizidines were prepared starting from lupinine and epilupinine. The aminomethylquinolizidines aminolupinane and aminoepilupinane were prepared according to G. R. Clemo et al (J. Chem. Soc., 429, 1931), while the aminoethylquinolizidines homoaminolupinane and homoaminoepilupinane were obtained upon reduction with LiAlH_4 of cyanolupinane and cyanoepilupinane, respectively. The aminoalkylquinolizidines were acylated with the chlorides of acetic, homoveratric, and homopiperonic acids thereby converted into the corresponding amides. Reduction of the amides with LiAlH_4 resulted in the formation of amines. The physical properties of the

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USSR

MNATSAKANYAN, V. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 4, 1973, pp 325-331

nine amines and nine amides that have been synthesized are listed in tables. Deamination of aminolupinane and aminoepilupinane in benzene with NaNO_2 and 50% acetic acid resulted in the formation of (-)lupinine + O-acetyllupinine and (+)epilupinine + O-acetylepilupinine, respectively. No rearrangement took place.

2/2

USSR

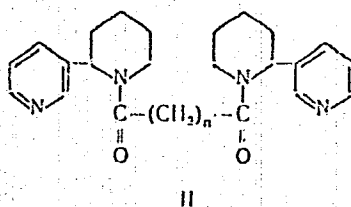
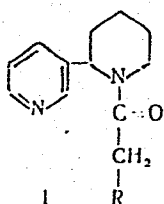
UDC 547.821+547.91

ABELYUNYAN, I. S., TSATINYAN, A. S., AVAKYAN, O. M., KARAGEZYAN, S. G.,
SARAFYAN, V. G., and MNATSAKANYAN, V. A., Institute of Fine Organic Chemistry
imeni A. L. Mndzhoyana, Academy of Sciences Armenian SSR (Yerevan)

"Modification of Alkaloid Structures. VI. Some N-substituted Anabazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 78-80

Abstract: Alkylhydroxyphenyl groups were substituted at the 2-, 3-, and 4-
position of structures I, II, III, and IV.

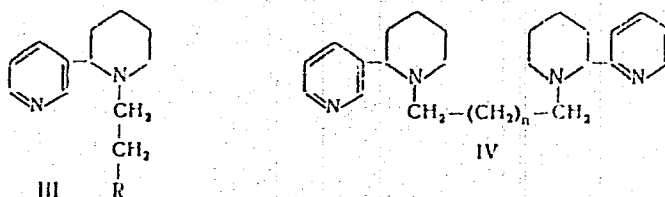


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- 5 -

USSR

ARUTYUNYAN, L. S., et al., *Armyanskiy Khimicheskiy Zhurnal*, Vol 25, No 1, 1972, pp 78-80



The products were separated and purified by thin-layer chromatography, and identified by their IR spectra. A table presents the values of $[\alpha]_D^{22}$, R_f , boiling point, and percent yield for all the compounds.

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Alkaloids

USSR

UDC 547.94

ARUTYUNYAN, L. S., KAYTANDZHIAN, M. A., MNATSAKANYAN, V. A., and MNDZHOYAN, A. L., Institute of Fine Organic Chemistry, Acad. Sc., Armenian SSR

"Modification of Alkaloid Structures. III. Some N-Alkoxybenzyl-(benzoyl)-anabazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 10, 1970, pp 923-927

Abstract: While studying the structure-activity relationships, a series of N-alkoxybenzoylanabazines (I) and N-alkoxybenzylanabazines (II) were synthesized. To obtain (I), anabazine was dissolved in benzene and a benzene solution of the respective acyl chloride was added to it, followed by a 10% KOH solution and another portion of acyl chloride in benzene. The mixture was refluxed 6 hrs with stirring, cooled and mixed with 2% acetic acid. The benzene layer was separated, washed with 2% acetic acid solution, water, and 5% NaOH, dried and benzene was evaporated to yield (I). To obtain the amines (II), (I) was dissolved in ether and reduced with LiAlH_4 . Most of the above products are dense oils. Physical properties are tabulated for individual compounds.

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USSR

UDC 669.1:539.216:538.248

ARUTYUNYAN, R. G., YEGIYAN, K. A., YEDIGARYAN, A. A., KOKOYAN, A. B., and
ALANAKYAN, G. A., Yerevan Scientific Research Institute of Mathematical
Machines

"Effect of Roughness and Thickness on the Coercive Force of Cylindrical
Iron-Nickel Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 732-736

Abstract: A study was made of the nature of coercive force H_c in cylindrical iron-nickel films, 0.4-2.2 microns thick, having a magnetoelastic constant close to zero. Two groups of films were investigated: smooth and rough films deposited respectively on polished and specially etched beryllium-bronze wire, 0.25 mm in diameter. In both cases an amorphous Ni-P alloy sublayer was applied to eliminate the effect of the wire's crystal structure. Sublayer roughness was altered by varying the wire-etching current density i_E and bath temperature T . From examination of microphotographs the following features were noted: 1) films deposited on the polished wire with $i_E = 0$ had an extremely smooth surface with an average diameter of heterogeneities of approximately 0.1 microns but with a large spread amounting to 0.01-0.05 microns; 2) increase in i_E led to the formation of a characteristic billy surface and sharp rise of H_c and the anisotropic dispersion φ_{80} with the highest value of $1/2$

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ARUFYUNYAN, R. G., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 732-736

$H_c = 1.8$ erg observed at $i_E = 16$ ma-cm² and D (hill diameter) and h (hill height) equal to 1.5 and 0.25 microns, respectively. After 16 ma-cm⁻², hill size diminishes; 3) a definite relationship exists between H_c , φ_{80} and D, h. 5 figures, 9 bibliographic references.

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USSR

UDC 616.001.28

ARUTYUNYAN, R. K., and TOKHIYAN, S. R., Sector of Radiobiology, Ministry of Health
Armenian SSR

"Hematological and Electrocardiographic Shifts in Radiation Sickness Induced on a
Background of Impaired Function of the Posterior Hypothalamus"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 10, 1970, pp 84-87

Abstract: Male rabbits were subjected to bilateral electrolytic coagulation of
mammary bodies at the P-3 level. At the height of the clinical development of
diencephalic pathology, the animals were irradiated once with a dose of 600 r.
Destruction of mammary bodies caused a slight rise of rectal temperature, body
weight loss, keratitis, conjunctivitis, loss of hair, and occasional paralysis.
The animals also refused food and water. The number of erythrocytes in peripheral
blood dropped progressively, accompanied by leucocytosis. The electrocardiograms
showed lower voltage of the QRS-complex and a slower heartbeat. All symptoms
reached a peak 14-15 days after the operation. Control animals showed no statis-
tically significant changes at that time. After irradiation, the animals with
destroyed mammary bodies showed a much more acute course of the disease in com-
parison to the controls. The experimental animals experienced long-lasting anemia,
acute leukopenia, lymphopenia, and neutrophilia; four of 17 animals died.

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antennas

USSR

UDC: 621.396.577:621.317.743

ARUTYUNYAN, R. S., ARUTYUNYAN, Dzh. S.

"Optical and Radio Holography in Antenna Measurements"

Dokl. Nauchno-tekhn. seminar "Metrol. v radioelektron." Seriya. Ch. 1 (Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics, Summaries, Part 1), Moscow, 1970, p 92 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6384)

Translation: The authors consider the possibility of recording and later reproducing electromagnetic waves in the optical frequency range. Possible systems for radio holography are given. The advantages of a system of radio holography with a reference signal are noted. Consideration is given to the possibility of simulating "slow" reference waves by utilizing a phase change in the input reference signal to produce a spatially separate signal wave in the optical range. Radio holography circuit parameters are determined on the basis of requirements for accuracy in reproduction of the recorded rf field in the optical region. Use of the method of radio holography is especially valuable for modeling the radiation patterns of large antennas in the optical region. An experiment is described in radio holographic recording of the emission field in the aperture of a parabolic antenna in the 8 mm wavelength range. The problem of changing from radio holograms to optical holograms is considered. An optical system is given for reproducing the field at the aperture of an antenna and subsequent modeling of the radiation pattern using the techniques of coherent optics. The problem of accuracy in modeling antenna radiation patterns is experimentally analyzed. Resumé.

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USSR

UDC: 669.018+621.386.8

ARUTYUNYAN, S. V.

"Investigating the Transition from Atomic Order to Disorder in $\text{Fe}_3(\text{Al}, \text{Si})$ Alloys Connected with the Formation of the K Effect"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR--Seriya tekhnicheskikh nauk, Vol. 23, No. 6, 1970, pp 36-42

Abstract: This is the fourth of a series of papers written by the author on the same subject. The present paper gives the results of an experimental investigation into the transition process from atomic order to disorder through the use of high-temperature X-ray diffractometry and by measuring the specific electrical resistance at room and high temperatures. A curve plotted for the resistivity of the alloy as a function of its aluminum content shows definite minima in resistance for $\text{Fe}_6\text{Al}_3\text{Si}$ and $\text{Fe}_{75}\text{Al}_{18}\text{Si}_7$. This indicates the formation of a three-component superstructure at the minima as compared with triple ordered alloys corresponding to either

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ARUTYUNYAN, S. V., Izvestiya Akademii Nauk Armyanskoy SSR--Seriya tekhnicheskikh nauk, Yerevan, Vol. 23, No. 6, 1970, pp 36-42

side of the minima. Such a sudden drop in resistivity is characteristic of disordered atomic composition in alloys. Curves of the resistivity as a function of the temperature of the alloy show that a change in curvature is found only at the Kurnakov point, which means that the change is connected with the K effect.

Methods developed for displaying superstructural lines on an RKD camera with a monochromator and for investigating metal powders at high temperatures are described.

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USSR

UDC: 538.323:621.378

ABRUTYUNYAN V. M. and AVETISYAN, G. K.

"Reflection and Capture of Charged Particles by a Plane Electromagnetic Wave in a Medium"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 54-56

Abstract: The interaction of charged particles with a plane electromagnetic wave in a medium with an index of refraction greater than unity is examined. If the wave field exceeds some critical value, the external particle cannot penetrate the wave nor can a particle within the wave break out of it. The cause of this phenomenon is that in a medium of this type, the velocity of the particle may be equal to the phase velocity of the wave, and the particle may absorb or eject Cerenkov photons. Also considered in this brief communication is the motion of the particle in the field of the wave, the analysis for which begins with the classical equations of motion of a relativistic particle, and is limited to the case in which the index of refraction of the wave exceeds unity. The case in which the particle is initially inside the wave is examined, and some possible applications of the effect are briefly explored.

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Immunology

USSR

UDC 616.981.42+591.445

TOROSYAN, S. Ye., MARDZHANYAN, D. S., MELIKYAN, D. A., and ARUTYUNYAN, V. M.,
Armenian Scientific Research Institute of Animal Husbandry and Veterinary
Medicine

"The Relationship Between Lymph Nodes and Adrenal Glands During Immunogenesis
in Rabbits With Brucellosis"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 12, pp 77-79

Abstract: In order to investigate the functional relationship between lymph nodes and adrenal glands, control rabbits and previously vaccinated rabbits were infected with *Brucella melitensis* strain No 74. The concentration of specific antibrucellosis agglutinins increased in the lymph nodes faster than in the blood. Maximum immunological reactivity in regional lymph nodes (those near the site of inoculation) was observed on the 7th day after vaccination and on the 20th day after infection. In mesenteric lymph nodes, immunological reactivity developed 3-5 days later and was less intense. The agglutinin titer in blood serum gradually increased to reach a maximum on the 20th day after vaccination. Control rabbits had the highest agglutinin titer in blood and in lymph nodes on the 20th day after infection. The immunological activity of the adrenal glands was determined according to the concentration of

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TOROSYAN, S. Ye., et al, Biologicheskii Zhurnal Armenii, Vol 23, No 12,
pp 77-79

ascorbic acid and cholesterol. The concentration of both these substances decreased in the adrenal glands on the 7th day and increased in blood serum on the 10th day after inoculation. Thus, immunogenesis involved simultaneous activation of lymph nodes and adrenal glands.

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PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp **37-44**

SOME NONLINEAR OPTICAL EFFECTS IN POTASSIUM VAPOUR

Arutvunyan, V. M.; Badalyan, N. N.; Iradyan, V. A.;
Movsesyan, M. Ye.

Some nonlinear effects (dependence of group velocity on intensity, phase modulation, pulse shape distortion, appearance of combined lines due to multiphoton interaction processes) are investigated theoretically near the $4P_{3/2} - 4S_{1/2}$ resonance of the potassium atom. Broadening of the spectral line of the second Stokes component of chloroform stimulated Raman scattering is observed on passage through a cell containing potassium at a saturated vapour pressure of 0.05--1.7 mm Hg. Under the same experimental conditions three-photon and five-photon scattering was observed.

REEL/FRAME

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Bionics

USSR

UDC 62--50:007:57

ARUTYUNYAN, V. S., ABOVYAN, V. G., and OGANESYAN, E. V., Laboratory of Neurobionics, Academy of Sciences Armenian SSR

"On the Problem of Scanning in Biological Systems"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 24, No 9, 1971, pp 90-93

Abstract: A probabilistic model is developed of the search for an extreme point located somewhere in a search space, given a certain starting point. The effectiveness of a random path from the starting point to the extreme point is given in terms of the angle between this path and a straight line connecting the two points. After K independent experiments, which produce K random paths between the two points, a sample is taken of a certain set of elements of the random event, and then from this set the single element is selected which is associated with the highest value of a certain index. Two formulas (for the discrete and continuous cases, respectively) are developed for determining the probability that a certain element will be the best one.

This model may be applied to extreme behavioral acts of animals, such as a dog seeking an odoriferous object located somewhere in a room (he is
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ARUTYUNYAN, V. S., et al., Biologicheskii Zhurnal Armenii, Vol 24, No 9, 1971, pp 90-93

actually seeking the point in space where the intensity of the smell is maximum). It is believed that the study of such acts may promote the development of optimal scanning algorithms, and the knowledge thus acquired may be applied to industrial problems.

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